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1946-47







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WAGES, SALARIES

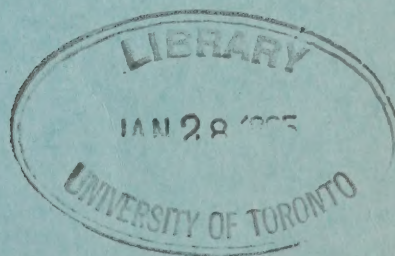
AND

SUPPLEMENTARY LABOUR INCOME

IN CANADA

BY MONTHS

JANUARY 1946 TO APRIL 1947.



OTTAWA  
August 1947

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### PREFATORY NOTE

Net National Income at factor cost measures the earnings of Canadian residents from productive operations in a specified calendar year. Widespread interest attaches to the statistics of salaries and wages since they are the largest single component of Net National Income. It is now possible to make reliable estimates of total salary and wage payments on a monthly basis, and this series is introduced in the present bulletin together with explanatory notes and comment. The statistics commenced with the present bulletin will appear monthly in future bulletins of employment and earnings.

In this series of monthly salary and wage payments the definitions used by the Bureau's National Income Unit have been followed. The preparation of the salary and wage estimates has required close cooperation involving many sections of the Dominion Bureau of Statistics and other Government departments. The National Income Unit has furnished some of the statistics and offered valuable advice on the basic concepts used.

The task of making the monthly estimates and the preparation of the present bulletin has been undertaken by Mr. Gideon Rosenbluth of the Labour and Prices Division, assisted by Mr. Bryan Burke.

*Herbert Marshall*

Herbert Marshall,  
Dominion Statistician.

# NATIONAL ACCOUNTS


Labour Income - Monthly Estimates  
(\$ Millions)

	Agri- culture(1) Logging, Fishing, and Trapping	Manu- facturing Mining and Electric Power	Con- struc- tion	Trans- portation Storage Communi- cations, and Trade	Finance and Services (incl. Gov't.)	Supple- mentary (2) Labour Income	TOTAL
1946	January	25	14	97	87	21	395
	February	27	14	100	89	20	402
	March	26	15	101	90	21	408
	April	22	16	102	89	20	404
	May	22	19	103	91	20	405
	June	26	21	105	93	21	421
	July	29	22	107	94	21	427
	August	33	23	109	96	22	439
	September	31	23	112	97	22	446
	October	31	23	114	97	23	454
	November	31	22	118	99	24	465
	December	32	17	117	99	23	446
1947	January	28	18	116	99	24	460
	February	30	19	118	99	24	467
	March	29	20	119	99	24	469
	April	24	22	119	100	24	468

(1) Includes Agricultural supplementary Labour Income

(2) Excludes Agricultural supplementary Labour Income





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DEPARTMENT OF TRADE AND COMMERCE  
DOMINION BUREAU OF STATISTICS - CANADA

Dominion Statistician:

Herbert Marshall

MONTHLY ESTIMATES OF LABOUR INCOME

JANUARY 1946 - APRIL 1947

This bulletin presents monthly estimates of total Labour Income in Canada from January, 1946 to April, 1947. Labour Income includes all wages, salaries and supplementary remuneration for employees' services. Further estimates will be published monthly in the Dominion Bureau of Statistics' bulletins on employment and earnings.

In the period covered by these estimates Labour Income continued to expand, reflecting both rising employment and increasing average earnings. Taking the period as a whole these two factors were of about equal importance in contributing to the rise in total Labour Income.

The total for the first four months of 1947 was about \$255 million, or 16%, above that for the first four months in 1946. Increases were distributed through all industrial groups except Agriculture which showed a decline.

The number of paid workers, as estimated by the Bureau's sampling unit, increased from 2.9 million in the week preceding February 23, 1946, to 3.2 million in the week preceding March 1, 1947. In about the same time average weekly earnings in the leading non-agricultural industries rose from \$32.53 to \$35.62. Average monthly wages of male workers in agriculture rose from \$96.27 on May 15, 1946 to \$103.96 on May 15, 1947.

The greatest proportionate increases in labour income were those in Logging and Construction, while the percentage increases in Trade, Transportation and Communications were also above the average.

Over one third of the increase between the two four-month periods ending in April 1946 and 1947 was accounted for by wages and salaries in Manufacturing where the percentage increase was just about the average. Mining, Finance and Services (including Government) showed smaller gains.

Annual estimates of Labour Income since 1938 have been published in the D. B. S. Bulletins: "National Accounts, Income and Expenditure, 1938 to 1946" (Table I, Item I) and "National Accounts, Income and Expenditure, 1938 to 1945" (Table I, Item I, and Table III). The latter bulletin contains notes on the concept of Labour Income (p. 13, "Salaries, Wages and Supplementary Labour Income") and brief notes on the methods and sources used in estimating the annual totals. Revised annual estimates and a more detailed description of methods will be published later this year.

Labour Income includes all wages, salaries, and "Supplementary Labour Income" received by Canadian residents. Salaries and Wages include bonuses and commissions and are reckoned before deductions for income tax, employee contributions to unemployment insurance and employee contributions to other social security schemes. Supplementary Labour Income consists of all employers' expenditures, in cash or in kind, that can be regarded as payment for the employees' services. It includes the following types of payments:



- (a) Value of meals, accommodation, clothing, recreational facilities, medical aid, etc., supplied by employers.
- (b) Cash allowances for the above.
- (c) Employers' contributions to Unemployment Insurance and to Workmen's Compensation, except the portion estimated to cover medical aid and hospitalization.
- (d) Employers' contributions to pension fund and insurance schemes, as well as pensions paid by employers where no fund is set up.
- (e) Discounts on employee purchases of the employer's goods, free passes to transportation employees, free insurance to insurance company employees, and similar arrangements in regard to the employer's products.

Current estimates of supplementary labour income are incomplete owing to the lack of information on some of the above items, particularly those under (e).

Labour Income is a component of "Net National Income at Factor Cost", "Gross National Product at Market Prices" and "Personal Income" (see "National Accounts, Income and Expenditure, 1938-1946", Tables I and III).

"Net National Income at Factor Cost" includes, in addition to Labour Income, the net income of unincorporated business (e.g. farmers, retail stores), corporate profits, interest and rent, and military pay and allowances. "Personal Income" consists of those parts of Net National Income that are available to individuals (e.g., undistributed profits and profits of government enterprises are excluded) plus "transfer payments" from the government or from business to individuals, such as unemployment benefits or family allowances.

In 1946 Labour Income amounted to about 56 per cent of Net National Income. The relationship between Labour Income and the other items in the National Accounts in the years 1938 to 1946 can be studied in the bulletins mentioned above.

The estimates of labour income are published in as much detail as their quality will permit. The possible error in some of the smaller sectors is such that separate figures for these sectors would be of no value, although the error is of little importance in relation to labour income as a whole.

#### Methods

The monthly estimates in this bulletin are based on the preliminary annual estimates for 1946.

For each industry group an index of the month-to-month change in salaries and wages is obtained and, where necessary, a monthly index of supplementary labour income. The estimated 1946 labour income for a given industry group is then divided by the 1946 twelve-month total of the corresponding index and the quotient is multiplied by the index for each month, to yield the estimated amount of labour income for that month. Each month the different industrial sectors of labour income computed in this way are added, to yield total labour income for that month.

In the major sectors the monthly indexes used are the indexes of "Aggregate Payrolls" published in the monthly bulletins Employment and Payrolls. These are generally based on the payrolls reported by employers having 15 or more employees for the



last week in each month.

The use of these indexes has several significant implications. First, the month-to-month changes in the estimates are independent of differences in the number of working days per month. In other words the estimates are not really for calendar months but for periods of one twelfth of a year. This means that comparisons of different "monthly" figures are more meaningful, for most purposes, than those based on calendar months would be.

Secondly, however, the estimates are inaccurate to the extent that the change in reported payrolls between the last week of one month and that of another does not correspond to the change in the total payrolls in the corresponding "monthly" (1/12 of a year) periods. In practice this is a serious problem only in the month of December, where holidays are concentrated in the last week, and only in so far as daily or hourly rated employees are concerned. Clearly these holidays reduce earnings in the last week of December much more, proportionately, than they reduce earnings for the month of December as a whole. This must be borne in mind when looking at the figures in the table. At the next revision of these estimates a rough adjustment to improve the December figure will be introduced.

Annual bonuses and payments of retroactive wage increases are not taken into account in computing the monthly payroll indexes, and hence are not reflected in these estimates. As more information on these payments becomes available, adjustments will be made on the monthly estimates.

Problems of classification arise because the annual and decennial censuses on which the annual estimates are based use different systems of industrial classification from that employed for the monthly payroll indexes. Wherever feasible adjustments are made either in the annual estimates or in the monthly indexes to make the groups correspond more closely. While perfection in this respect cannot be achieved, it must be remembered that it is not necessary for the group of establishments represented in the index to correspond exactly to that represented in the annual estimate, as long as the trend of the index can be regarded as representing the trend of labour income in the class of establishments represented in the annual estimate.

In a number of sectors where no suitable index of payrolls is available data from the quarterly Labour Force Survey are used to provide an index of the changing numbers of employees.

Indexes of the change in the value of board and lodging supplied by employers (other than agricultural) are obtained by multiplying suitable employment indexes by the index of retail food prices. Indexes of pensions and Welfare expenditure are based on the trend of total payrolls in the sectors concerned.

An outline of the method of index construction in each sector follows.

#### Agriculture:

An index of employment is constructed from Labour Force Survey data. The number of paid workers in Agriculture at each survey date is plotted on squared paper and a freehand line drawn through these quarterly points. In drawing the freehand line, and in projecting it beyond the last available survey date, background information regarding seasonal patterns and current trends is utilized. An estimate of employment for the fifteenth of each month is read off this chart.



An index of average monthly earnings is obtained in a similar manner. For January 15, May 15, and August 15 of each year the Bureau's Agricultural Division computes average wages of male farm workers paid by the month and average wages paid by the day, both "with board" (i.e. when board is provided by the farmer) and "without board". Estimates of the number of hired workers paid by the month and the number paid by the day, per 100 farms, are also made. All these figures are based on mail returns obtained from the Bureau's crop correspondents in the various regions.

From these figures an index of average earnings is constructed by the following formula:

$$\left( \frac{W_1}{W_0} \times \frac{N_1}{N_1 \div n_1} \right) \div \left( \frac{w_1}{w_0} \times \frac{n_1}{n_1 \div n_1} \right) = \text{index for period}_1$$

Where W - wages paid by the month, "without board"

w - wages paid by the day, "without board"

N - number of hired workers per 100 farms paid by the month

n - number of hired workers per 100 farms paid by the day  
and the suffixes "0" and "1" represent the base period and any given period respectively.

This index is the closest approach to a true index of average earnings that is feasible with the available data. It is identical with such an index if one can assume that:

(a) At the base period date the average monthly earnings of daily paid help were the same as the average monthly wage rate.

(b) Changes in the male wage rates reported are representative of changes in female wage rates.

(c) Changes in the number of hired workers per 100 farms, as computed, reflect changes in the total number of hired workers.

Like the employment figures, the index of average earnings is plotted on squared paper and a freehand line drawn between the dates for which figures are available. Monthly figures are read off this line, and the indexes of employment and average earnings are multiplied together each month to provide an index of payrolls. Since the wage statistics used (wages "without board") include a sum roughly corresponding to the value of board, this index is used to project the total of both agricultural wages and agricultural supplementary labour income.

#### Fishing:

The monthly series of the total value of fish landed, as published in the D. B. Monthly Review of Business Statistics, is used as an index. This is a fairly appropriate series since in this industry wages are mostly paid as a given percentage of the catch. This method is of course inaccurate in so far as it does not reflect changes in the percentage distribution of the catch established by bargaining.

#### Trapping:

The annual estimate for this sector is extremely small, and there is no information on its monthly distribution. It is distributed evenly, accounting for \$30,000



of the wage bill every month. Any alternative distribution would have made no difference to the total monthly figures in millions of dollars.

Logging, Coal Mining, Metal Mining, Non-Metallic Mineral Mining, Electric Power, Manufacturing, Telegraph, Telephone, Water Transport, Retail Trade, Wholesale Trade, Finance.

For each of these groups the corresponding index of aggregate payrolls is used. The index of payrolls for the last week of, say, October and published in the monthly bulletins as "index number of aggregate payrolls at November 1" is taken as the index for October in these estimates.

Steam Railways (excluding telegraph and manufacturing shops).

The index used is a weighted average of the payroll indexes for "Steam Railways" and "Railway Construction". This is necessitated by a difference in industrial classification between the annual figures and the monthly indexes.

Electric Railways, Busses, Trucking, Taxis, Storage, Air Transport.

The payroll index for "Street Railways, Cartage and Storage" is used. While all the above groups are represented in this index, the coverage of trucking and taxis is very low. Moreover, the index includes grain elevators under "storage" while they are included with "wholesale trade" in the annual estimates. At the next revision of the monthly estimates an improvement in this sector will be made by shifting an estimate for Grain Elevators from the Wholesale Trade group to Storage.

#### Construction

The index used is a weighted average of the payroll indexes for "Building Construction and Highway Construction". The index for "Railway Construction" which is included in the construction group in the published monthly indexes, was shifted to Steam Railways, to correspond with the classification of the annual estimates.

#### Dominion Government

The index is based on the monthly series of Civil Service Salaries, computed by the Public Finance Branch, with certain adjustments arising from a comparison of this series with the Public Accounts for past years.

#### Provincial and Municipal Government

By utilizing public accounts and estimates for previous years the annual estimate for 1946 was divided into two parts:

- (a) A rough estimate of wages paid for construction work
- (b) The remainder

The index of payrolls for highway construction is applied to the amount under (a).

A rough forecast for 1947 of the amount under (b) was made on the basis of an analysis of Provincial and Municipal budgets, and a study of the relationship between salaries and wages and total expenditure for past years. There is no information on the monthly distribution of this sector, and no reason to assume any seasonal pattern.



The monthly distribution is therefore based on the assumption of a constant month-to-month change over the two year period. In other words the monthly estimates for this sector form an arithmetic progression, of which the first twelve terms add up to the total estimate (under b) for 1946 and the first twenty-four terms to the total of the estimates for 1946 and 1947. These estimates will be improved as further information on public expenditures, salaries and wages for 1946 and 1947 becomes available.

#### Professional Service.

This group includes teachers and other employees in educational establishments, salaried doctors, dentists, nurses and other employees in health services, employees in law, religion, and a variety of other professional services.

No direct information on month-to-month changes in earnings of this group is available, but it cannot be expected that monthly fluctuations are very substantial.

A rough idea of the change in numbers of employees was obtained from the quarterly Labour Force Surveys, using the method described above under Agriculture. The general trend of the monthly series of average weekly earnings in "Finance", as published in the monthly bulletins on Employment and Payrolls, was taken as an indication of the trend of earnings in Professional Service. The indexes of employment and average earnings were multiplied to yield payroll indexes.

#### Laundries and Repair Services

This group includes laundries, cleaning and dyeing establishments, automobile repair, boot and shoe repair, and a number of other retail repair groups.

The index used for this group is the payroll index for "Personal Service, Chiefly Laundries". According to the 1941 Census of Merchandising and Services, laundries and cleaning and dyeing establishments accounted for 68% of the total payroll in this group, while power laundries and cleaning and dyeing plants (i.e. the larger establishments) accounted for 64% of the total payroll.

#### Domestic Service

An index of employment is obtained from Labour Force Survey data, using the technique described above. The trend of average weekly earnings in Hotels and Restaurants, as published in the monthly bulletins on Employment and Payrolls, is taken as an indication of the trend of average earnings in Domestic Service. Indexes of employment and average earnings are multiplied to yield indexes of payrolls.

#### Other Service

Included here are hotels, lodging houses, and restaurants, recreational and business services, barbering, photography, undertaking and miscellaneous personal services ranging from matrimonial agencies to fumigators.

The monthly payroll index for "Hotels and Restaurants" is used for this group. At the time of the 1941 population census, wage earners employed in Hotels and Restaurants accounted for two thirds of the total number of wage earners in this group.

#### Supplementary Labour Income (excluding Agriculture)

Board and Lodging - Logging, Water Transport, Hotels and Restaurants. For each



of these groups the corresponding index of employment is taken as an indication of the changes in the number of people receiving these allowances. The index of retail food prices published in the monthly bulletin on prices and Price Indexes is taken as an indication of the change in the average value per head of these allowances. The two indexes are multiplied together to yield an index of the changing total value of board and lodging supplied in each sector.

Board and Lodging - Domestic Service. The monthly employment series used for the estimate of salaries and wages of Domestic Service is multiplied by the retail food price index.

Board and Lodging - "No Pays". This is an estimate of the value of board and lodging furnished to persons working without pay who are not working as members of a family enterprise (Where no-pays are working in a family enterprise their income in kind is treated as being included in the earnings of the enterprise as a whole, and hence is included in the "Net Income of Unincorporated Enterprise", in the National Accounts).

A monthly employment series for this sector is based on the Labour Force Survey figures for the number of "no-pays", excluding those in "Agriculture", "Forestry, Fishing and Trapping" and "Trade and Finance" who are presumed to be predominantly members of family enterprises. The resulting index is multiplied by the index of retail food prices.

Pensions and Welfare Expenditure. Included here are employers' contributions to pension funds, pension payments where no contributory fund is established, welfare and similar expenditures by employers.

The indexes used for the monthly distribution and projection of these series are the monthly payroll series in the relevant sectors.

Workmen's Compensation. This is an estimate of employers' contributions to workmen's compensation funds, excluding the part that is estimated as covering the cost of medical aid and hospitalization.

The index used is the total of salaries and wages in all sectors except Agriculture and Government.

Unemployment Insurance, Employers' contributions. The index used is the monthly total of employer and employee contributions as reported by the Unemployment Insurance Commission.

#### REVISIONS AND ADJUSTMENTS

The monthly payroll and employment indexes on which the estimates of Labour Income are largely based are usually revised slightly after their first publication, the revised "last month" figure being published in the subsequent bulletin. Accordingly, the estimate of Labour Income is revised from month to month though the revision in the total is very slight.

Those sectors of the estimates that are dependent on projections of Labour Force Survey data will be revised on a quarterly basis, as the results of new Surveys become available.

The monthly estimates will be adjusted as annual estimates are revised, or new annual estimates become available, without however, destroying the continuity of the monthly series.



### Quality of the Estimates

The estimates can be divided into three groups according to the quality of the monthly distribution. The percentage of the annual total in each group is as follows:

Group 1	.....	78 p.c.
Group 2	.....	6 p.c.
Group 3	.....	16 p.c.

The estimates in the first group are mainly those for which fairly comprehensive monthly indexes are available. The sectors included here are salaries and wages in Logging, Mining, Manufacturing Electric Power, Communications, Railways, Water Transport, Construction, Trade, Finance, Dominion Government, as well as employers' contributions to unemployment insurance.

The second group of estimates also use indexes based on monthly series, but some of these cover a smaller portion of the sectors concerned while others are only indirect indicators of the trend of labour income. Included here are salaries and wages in Fishing, Laundries and Repair Services, "Other Service" as well as board and lodging supplied by employers in Logging, Water Transport, Hotels and Restaurants, and employers' contributions to Workmen's Compensation Funds.

The third group consists of the remaining sectors. These are mainly the estimates relying on data from the quarterly Labour Force Surveys, as well as others for which a number of special assumptions had to be made. Included here are salaries and wages in Fishing, Laundries and Repair Services, "Other Service" as well as board and lodging supplied by employers in Logging, Water Transport, Hotels and Restaurants, and employers' contributions to Workmen's Compensation Funds.

The third group consists of the remaining sectors. These are mainly the estimates relying on data from the quarterly Labour Force Surveys, as well as others for which a number of special assumptions had to be made. Included here are salaries and wages in Agriculture, Electric Railways, Trucking, Storage, Professional Service, Domestic Service, Provincial and Municipal Government, as well as board and lodging in Agriculture, Domestic Service and for "No-Pays". Employers' contributions to pensions and welfare expenditures are also included here.

### Comparison with the Index of Payrolls in Nine Leading Industries

Below is a comparison of the monthly estimates of labour income, converted to an index on the base January 1946 = 100, with the index of payrolls in "Nine Leading Industries" as published in the monthly bulletins on Employment and Payrolls, converted to the same base.

	<u>Total Labour Income</u>	<u>Payroll Index</u>
<u>1946</u> January	100.0	100.0
February	101.8	101.4
March	103.2	102.8
April	102.2	101.7
May	102.7	100.9
June	106.7	104.8
July	108.2	105.7
August	111.1	107.5
September	113.0	110.6
October	115.0	113.9
November	117.8	117.8
December	113.0	110.7
<u>1947</u> January	116.5	118.4
February	118.2	120.2
March	118.3	120.3
April	118.0	120.9



The difference between the two indexes is due to differences in (a) scope and (b) weighting.

- (a) The estimates of total labour income cover salaries and wages as well as supplementary labour income in all sectors of the economy. The index of payrolls in nine leading industries does not cover supplementary labour income and omits payrolls in Agriculture, Fishing, Trapping, and most of the Service field.
- (b) For the sector of Labour Income covered by the index of payrolls in nine leading industries, both that index and the estimates can be viewed as weighted averages of the payroll indexes for the different industry groups. The weights used in the "payroll index" are the salaries and wages in establishments with 15 or more employees in each industry group. The weights used in the "estimates", on the other hand, are the estimated total salaries and wages in each industry group.

In March, 1947, for example, the industrial sectors represented in the "payroll index" accounted for 80 % of total labour income. Within the sector represented in the "payroll index" the weighting of the different industry groups compared as follows:

	Weights Used for estimate of total Labour Income		Weights Used for index of payrolls in Nine Leading Industries	
Manufacturing, Mining, Electric Power	47 %)		57 %)	
Transportation and Communications	14 %)	66 %	15 %)	73 %
Construction	5 %)		6 %)	
Logging	6 %)		6 %)	
Trade	18 %)	34 %	10 %)	22 %
Finance	5 %)		4 %)	
Retail Service and "Other Service"	5 %)		2 %)	
	100 %		100 %	







